

Kristian Pador

July 16 2022

Week 3 Coding Assignment

Intro to Java Week 3 Coding Assignment

Points possible: 70

Category	Criteria	% of Grade
Functionality	Does the code work?	25
Organization	Is the code clean and organized? Proper use of white space, syntax, and consistency are utilized. Names and comments are concise and clear.	25
Creativity	Student solved the problems presented in the assignment using creativity and out of the box thinking.	25
Completeness	All requirements of the assignment are complete.	25

Instructions: In Eclipse, or an IDE of your choice, write the code that accomplishes the objectives listed below. Ensure that the code compiles and runs as directed. Take screenshots of the code and of the running program (make sure to get screenshots of all required functionality) and paste them in this document where instructed below. Create a new repository on GitHub for this week's assignments and push this document, with your Java project code, to the repository. Add the URL for this week's repository to this document where instructed and submit this document to your instructor when complete.

Coding Steps:

1. Create an array of int called ages that contains the following values: 3, 9, 23, 64, 2, 8, 28, 93.
 - a. Programmatically subtract the value of the first element in the array from the value in the last element of the array (i.e. do not use ages[7] in your code). Print the result to the console.
 - b. Add a new age to your array and repeat the step above to ensure it is dynamic (works for arrays of different lengths).
 - c. Use a loop to iterate through the array and calculate the average age. Print the result to the console.

2. Create an array of String called names that contains the following values: “Sam”, “Tommy”, “Tim”, “Sally”, “Buck”, “Bob”.
 - a. Use a loop to iterate through the array and calculate the average number of letters per name. Print the result to the console.
 - b. Use a loop to iterate through the array again and concatenate all the names together, separated by spaces, and print the result to the console.
3. How do you access the last element of any array?
4. How do you access the first element of any array?
5. Create a new array of int called nameLengths. Write a loop to iterate over the previously created names array and add the length of each name to the nameLengths array.
6. Write a loop to iterate over the nameLengths array and calculate the sum of all the elements in the array. Print the result to the console.
7. Write a method that takes a String, word, and an int, n, as arguments and returns the word concatenated to itself n number of times. (i.e. if I pass in “Hello” and 3, I would expect the method to return “HelloHelloHello”).
8. Write a method that takes two Strings, firstName and lastName, and returns a full name (the full name should be the first and the last name as a String separated by a space).
9. Write a method that takes an array of int and returns true if the sum of all the ints in the array is greater than 100.
10. Write a method that takes an array of double and returns the average of all the elements in the array.
11. Write a method that takes two arrays of double and returns true if the average of the elements in the first array is greater than the average of the elements in the second array.
12. Write a method called willBuyDrink that takes a boolean isHotOutside, and a double moneyInPocket, and returns true if it is hot outside and if moneyInPocket is greater than 10.50.
13. Create a method of your own that solves a problem. In comments, write what the method does and why you created it.

Screenshots of Code:

```
// 1) Create an array of int called ages that contains the following values: 3, 9, 23, 64, 2, 8, 28, 93

int[] ages = new int[] {3, 9, 23, 64, 2, 8, 28, 93, 105};

for(int i = 0; i < ages.length; i++) {
    System.out.println(ages[i]);
}

// a) Programmatically subtract the value of the first element in the array from the value in the last element of the array.

int newAge = ages[ages.length - 1] - ages[0];
System.out.println("Difference of the last and first elements: " + newAge);

// b) Add a new age to your array and repeat the step above to ensure it is dynamic

// c) Use a loop to iterate through the array and calc the average
int sum = 0;
for(int i = 0; i < ages.length; i++) {
    sum += ages[i];
}

double ave = ((double)sum / ages.length);
System.out.println("The average of the array is : " + ave);
}
```

```

40 public static void main(String[] args) {
41     // 2) Create an array of String called names that contain: "Sam", "Tommy", "Tim", "Sally", "Buck", "Bob"
42
43     String[] names = new String[] {"Sam", "Tommy", "Tim", "Sally", "Buck", "Bob"};
44
45     // a) Use a loop to iterate through the array and calculate the average number of letters per name.
46     int sum = 0;
47     for(int i = 0; i < names.length; i++) {
48         int lenName = names[i].length();
49         sum += lenName;
50     }
51     System.out.println((double)sum / names.length);
52
53     // b) Use a loop to iterate through the array again and concatenate all the names together, separated by spaces.
54
55     String allNames = "";
56     for(int i = 0; i < names.length; i++) {
57         allNames += names[i] + " ";
58     }
59     System.out.println(allNames);
60 }

```

3) To access the last element of any array, you would use `arr[arrName.length -1]`

4) To access the first element of any array, you would use `arr[0]`

```

1 public class questions5AND6 {
2
3     public static void main(String[] args) {
4
5         String[] names = new String[] {"Sam", "Tommy", "Tim", "Sally", "Buck", "Bob"};
6
7         // 5) Create a new array of int called nameLengths. Write a loop to iterate over the previously created names array and add the length of each name
8         int[] nameLengths = new int[6];
9
10        for(int i = 0; i < names.length; i++){
11            nameLengths[i] = names[i].length();
12            System.out.println("nameLength[" + i + "] = " + nameLengths[i]);
13        }
14
15        // 6) Write a loop to iterate over the nameLengths array and calculate the sum of all the elements in the array
16        int totalSum = 0;
17        for(int num : nameLengths) {
18            totalSum += num;
19        }
20        System.out.println(totalSum);
21    }
22 }
23
24 // 7) Write a method that takes a String, word, and an int, n, as arguments and returns the word concatenated to itself n number of times
25
26 public static String problem(String word, int n) {
27     String longString = "";
28     for(int i = 0; i < n; i++) {
29         longString += word;
30     }
31     System.out.println(longString);
32     return longString;
33 }

```

// 8) Write a method that takes two String, firstName and lastName, and returns a full name

```

public static String fullName(String firstName, String lastName) {
    String myName = firstName + " " + lastName;
    return myName;
}

```

// 9) Write a method that takes an array of `int` and returns true if the sum of all the `ints` in the array is greater than 100

```
public static boolean bigSum(int[] numbers) {  
    int totalSumTwo = 0;  
    boolean itTrue = true;  
    for(int i = 0; i < numbers.length; i++) {  
        totalSumTwo += numbers[i];  
    }  
    if(totalSumTwo < 100) {  
        itTrue = false;;  
    }  
  
    return itTrue;  
}
```

//10) Write a method that takes an array of double and returns the average of all elements in the array

```
public static double meElements(double[] numbers) {  
    double theSum = 0;  
    for(int i = 0; i < numbers.length; i++) {  
        theSum += numbers[i];  
    }  
    double arrAve = theSum / numbers.length;  
    return arrAve;  
}
```

//11) Write a method that takes two arrays of double and returns true if the average of the elements in the first array is greater than the average of the elements in the second array

```
public static boolean isItGreater(double[] a, double[] b) {  
    double sumA = 0;  
    double sumB = 0;  
    boolean isTrue = true;  
    for(int i = 0; i < a.length; i++) {  
        sumA += a[i];  
    }  
    for(int i = 0; i < b.length; i++) {  
        sumB += b[i];  
    }  
    double aveA = sumA / a.length;  
    double aveB = sumB / b.length;  
    if(aveB > aveA) {  
        isTrue = false;  
    }  
    System.out.println("AveA = " + aveA);  
    System.out.println("AveB = " + aveB);  
    return isTrue;  
}
```

//12) Write a method called willBuyDrink that takes a boolean isHotOutside and a double moneyInPocket, and returns true if it is hot outside and moneyInPocket > 10.50

```
public static boolean willBuyDrink(boolean isHotOutside, double moneyInPocket) {  
    boolean isTrue = false;  
    if(isHotOutside == true && moneyInPocket > 10.50) {  
        isTrue = true;  
    }  
    return isTrue;  
}
```

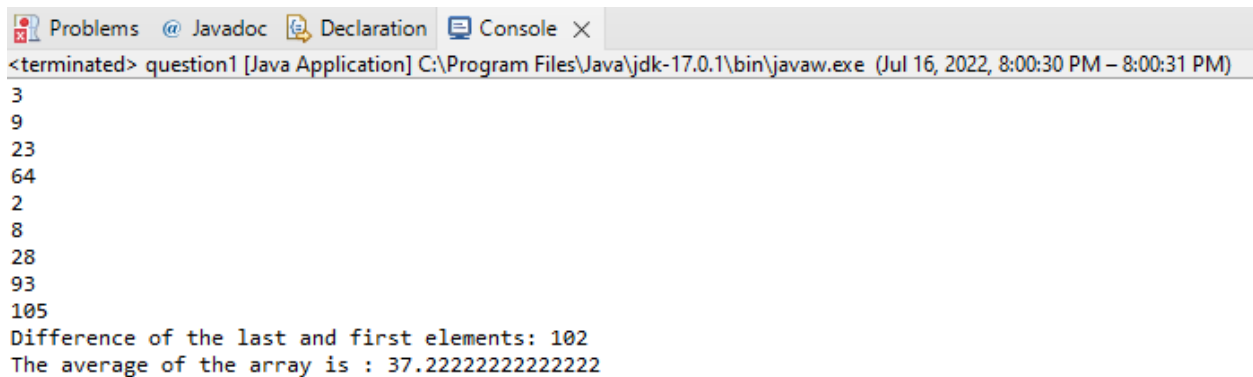
//13) Create a method of your own that solves a problem. In comments, write what the method does and why you created it.

```
public static boolean canIBuyIt(double bankAccount, double costOfItem) {  
    boolean isTrue = false;  
    if(bankAccount > costOfItem) {  
        isTrue = true;  
    }  
    return isTrue;  
}
```

```
}
```

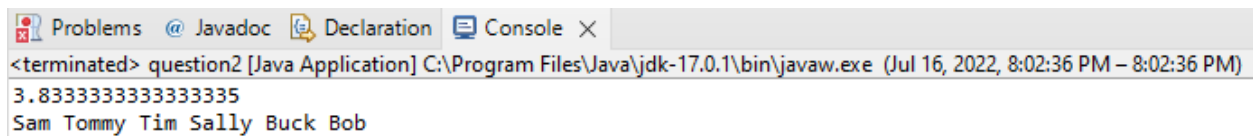
Screenshots of Running Application:

1)



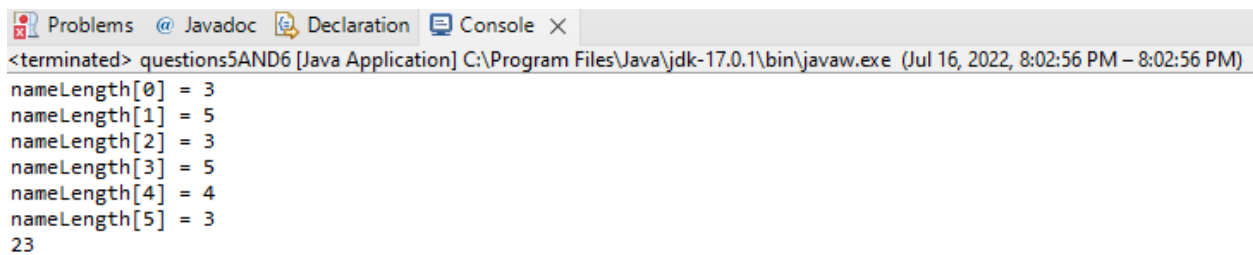
```
<terminated> question1 [Java Application] C:\Program Files\Java\jdk-17.0.1\bin\javaw.exe (Jul 16, 2022, 8:00:30 PM – 8:00:31 PM)
3
9
23
64
2
8
28
93
105
Difference of the last and first elements: 102
The average of the array is : 37.22222222222222
```

2)



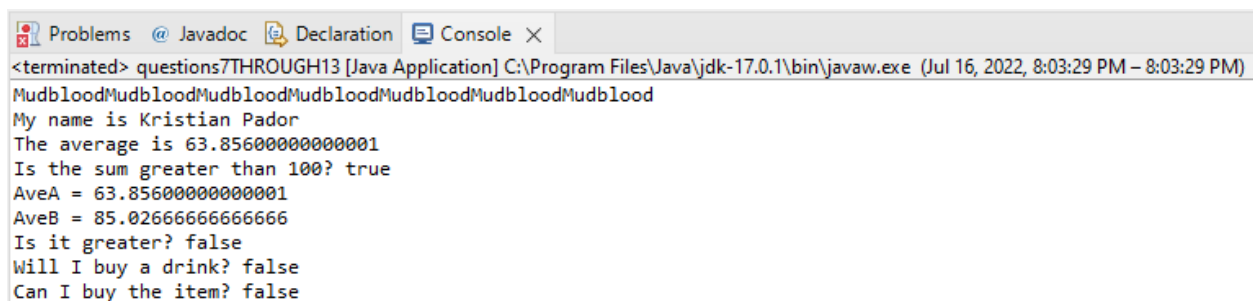
```
<terminated> question2 [Java Application] C:\Program Files\Java\jdk-17.0.1\bin\javaw.exe (Jul 16, 2022, 8:02:36 PM – 8:02:36 PM)
3.8333333333333335
Sam Tommy Tim Sally Buck Bob
```

5 & 6)



```
<terminated> questions5AND6 [Java Application] C:\Program Files\Java\jdk-17.0.1\bin\javaw.exe (Jul 16, 2022, 8:02:56 PM – 8:02:56 PM)
nameLength[0] = 3
nameLength[1] = 5
nameLength[2] = 3
nameLength[3] = 5
nameLength[4] = 4
nameLength[5] = 3
23
```

7 – 13)



```
<terminated> questions7THROUGH13 [Java Application] C:\Program Files\Java\jdk-17.0.1\bin\javaw.exe (Jul 16, 2022, 8:03:29 PM – 8:03:29 PM)
MudbloodMudbloodMudbloodMudbloodMudbloodMudbloodMudblood
My name is Kristian Pador
The average is 63.85600000000001
Is the sum greater than 100? true
AveA = 63.85600000000001
AveB = 85.02666666666666
Is it greater? false
Will I buy a drink? false
Can I buy the item? false
```

URL to GitHub Repository:

<https://github.com/KristianPador/Week3-Coding-Assignment>